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Montana
Office of Public Instruction
Denise Juneau, State Superintendent

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Spring 2013 *MCCSM: Standards for Mathematical Practices*
Syllabus for Montana Educators—Classroom Instruction
April 22-May 24, 2013

MCCSM: Standards for Mathematical Practices is part of a series of online professional development opportunities offered by the Montana Office of Public Instruction.

- The purpose of this course is to increase understanding of the Montana Common Core Standards for Mathematics and to help participants become skillful users of the Standards for Mathematical Practices in their classrooms.
- Participants will closely examine the mathematical practices. In addition to reviewing mathematical practices resources, participants will focus on how they are implemented effectively in the classroom.

Assigned Readings

- Students will read assigned articles provided by the instructor.

The PLC's will be facilitated online.

- The platform for the course is Adobe Connect, which is supported by the Office of Public Instruction.
- In order for participants to connect and listen to the sessions, they must have speakers and Adobe Flash Player, which is already installed on 98% of computers today.
- To participate in the learning communities, participants will need microphones. The Office of Public Instruction will provide information on the microphones in follow-up detailed emails to class registrants.
- Technical support will be provided so that each participant or group will be able to participate fully in the discussion via technology.
- After registration for the course, instructions for accessing the online discussions will be sent to registrants.

Class Personnel

- Lisa Scott, Lisa Scott Mathematics Education Consulting, LLC, Owner

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Assigned Readings:

- **Week One:** Montana Common Core Standards for Mathematical Practices and Content (pages 1-8) Found at http://opi.mt.gov/pdf/CCSSO/11NovMathPractice_ContentGradeLevel.pdf & Montana Common Core Shifts in Mathematics Found at http://opi.mt.gov/pdf/CCSSO/11DecShifts_Math.pdf

- **Week Two**: *K-12 Series Introduction* (pages 1-10) Found at http://www.mathedleadership.org/docs/ccss/itp/K-12_SeriesIntroduction_Handouts.pdf

- **Week Three:** *K-8 Problem of the Month* Found at http://www.mathedleadership.org/docs/ccss/itp/K-8_Problem_of_the_Month_-Resources_and_Handouts.pdf

- **Week Four:** Select a reading from http://www.mathedleadership.org/ccss/itp/index.html

- **Week Five:** Select a reading from http://montanacommoncorestandards.wikispaces.com/Mathematics+Resources-Materials

Assignments

1. **Weekly reading assignments and webinar viewing**
2. **Learning synthesis written responses -** Every week, participants will post a short reflection on their learning that is related to at least one of the reading assignments on the discussion board online. In addition, participants are expected to respond to the ideas raised in *at least one* other post by a classmate. In these learning synthesis responses, you can identify ideas, language, concepts and terms that are new or challenging to you; you can explain what you value about the reading(s), connecting to ideas discussed in class or with your colleagues in the field; and /or you can discuss the relevance to your practice as an educator and school leader. These learning synthesis responses, while brief, will serve as an anchor for our Professional Learning Community discussions. Reflection questions in the Course Outline part of this syllabus serve as points for reflection in your learning synthesis response.
3. **Design two lesson plans using the Mathematical Practices standards appropriate for the grade level you will be teaching. If you are not a classroom teacher, develop a memo for a school leader outlining and recommending best practices in teaching and assessing MCCS Mathematical Practices for your school community to adopt.**

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Credits and Renewal Units:

Audience: Individual educators, teams of educators, pre-service teachers, curriculum specialists, or other school personnel. Participants are expected to have regular access to computers and proficiency with email and current web-browsers.

The class may be taken for graduate credits or renewal units or neither. During registration for the class, you will have the opportunity to choose credits or renewal units. It is the responsibility of degree-seeking participants to seek approval from their institutions to use this course toward meeting program requirements.

You will receive email confirmation of your registration for the class on the Office of Public Instruction website within five (5) business days. OPI will send a follow-up email regarding graduate credits, renewal units, and other class details.

- The class may be taken for 2 graduate credits. The approximate price is $200. Information for registration for graduate credit can be obtained from the OPI Assessment Division staff. The course requirements for for-credit students are listed below. The expectation is that you will complete assignments and course activities that are worth a maximum of 130 points. The distribution of these points across class activities and due dates are identified below. The criteria for grading are provided after the table.

- The class may be taken for 30 renewal units. Information on validation of participation for renewal units will be included in the follow-up email from OPI.

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Activity / Assignment	**Due Date**	**Points / Renewal Units possible**
Online Professional Learning Community discussions	Weekly	50 points (10 pts/week) 10 Renewal Units (2 RUs/week)
Learning synthesis written response & threaded discussion involvement	Weekly	50 points (10 pts/week) 10 Renewal Units (2 RUs/week)
Project: Mathematical Task Lesson Plan	5/10/13	10 points 4 Renewal Units
Project: Mathematical Practices Lesson Plan	5/17/13	10 points 4 Renewal Units
Action Planning: Write and share a plan to implement Standards for Mathematical Practice for the beginning of school. .	5/24/13	10 points 2 Renewal Unit

Grading: The total points associated with final grades are as follows:

			B+	116-113		C+	103-100		D+	90-87			
A	130-123		B	112-109		C	99-96		D	86-83		F	0-77
A-	122-117		B-	108-104		C-	91-95		D-	82-78			

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COURSE OUTLINE

DATES	OBJECTIVES	CONTENT	REFLECTION QUESTIONS/ASSIGNMENTS
Unit 1	*1. Learn about the Montana Common Core Standards.* *2. Explore the Standards for Mathematical Practices.*	MCCS Overview Webinar Found at http://opi.mt.gov/Curriculum/MontCAS/update_listings/Webinars/2012-05-14_105500.html Readings: *Montana Common Core Standards for Mathematical Practices and Content* (pages 1-8) Found at http://opi.mt.gov/pdf/CCSSO/11NovMathPractice_ContentGradeLevel.pdf & *Montana Common Core Shifts in Mathematics* Found at http://opi.mt.gov/pdf/CCSSO/11DecShifts_Math.pdf	1. What does the quote on slide 4 mean to you? 2. What are your ideas for implementing IEFA into mathematics instruction? (See slides 7& 8)? 3. What are you reactions to the quote in slide 12? 4. Write your reactions to the Six Major Shifts in Mathematics. 5. Which of the Standards for Mathematical Practices are you currently using in your instruction? Please provide specific examples to share with the other participants.
Week 1	*Learning Community*	Facilitated Discussion of Week One Readings & Webinars	***Weekly written response due by PLC***
Unit 2	*1. Explore the Standards for Mathematical Practice* *2. Consider how the MCCSM are likely to impact your mathematics program and to plan next steps.* *3. Become familiar with the components and history of the MCCSM.*	K-12 Series Introduction Webinar Readings: *K-12 Series Introduction* (pages 1-10) Found at http://www.mathedleadership.org/docs/ccss/itp/K-12_SeriesIntroduction_Handouts.pdf	1. On a scale of 1 (low) to 6 (high), to what extent are you and your school/district promoting all students' proficiency in the Mathematical Practices? What evidence might you site for your rating? 2. What implications might the Standards for Mathematical Practice have on your classroom? 3. On slide 28, why do you think aligning MCCSM grade-by-grade with existing mathematics standards is not the place to start? What would be a better starting point? 4. Write your reactions to the reflection questions on slide 30 for sharing during the discussion. 5. Write one or two next steps you might take as a district, school, and teacher to begin to implement the practices. 6. Are there any aspects of your own thinking and/or practice that our work today has caused you to consider or reconsider? Explain. 7. Are there any aspects of your students' mathematical learning that our work today has caused you to consider or reconsider? Explain.
Week 2	*Learning Community*	Facilitated Discussion of Week Two Readings & Webinars	***Weekly written response due by PLC***

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Unit 3	*1. Examine use of robust problem solving tasks in relation to developing student's fluency with the practices.* *2. Write a lesson that incorporates a selected task involving problem solving.*	K-8 Problem of the Month Webinar **Reading:** *K-8 Problem of the Month* Found at http://www.mathedleadership.org/docs/ccss/itp/K-8_Problem_of_the_Month_-Resources_and_Handouts.pdf	1. Find a solution or multiple solutions to the Part and Whole Tasks on slides 8 & 9. What mathematics content is needed to complete the task? Which problem solving related practices are needed to complete the task? 2. What opportunities do your students currently have to grapple with non-routine complex tasks and to reflect on their thinking and consolidate new mathematical ideas and problem solving solutions? 3. What opportunities does the Problem of the Month (POM) tasks offer students to develop skill with the Standards for Mathematical Practice? 4. How might the POM Write-up support the development of the Problem Solving Standards of Practice for a broad range of students? 5. What opportunities and challenges for teachers working to implement the MCCS does a POM activity suggest to you? 6. Select a task set and design a lesson that offers opportunities for students to develop key content and problem solving related practices. http://www.insidemathematics.org/index.php/tools-for-teachers/problems-of-the-month
Week 3	*Learning Community*	Facilitated Discussion of Week Three Readings & Webinars	***Weekly written response due by PLC*** **Lesson Plan Due by 5/10/13**
Unit 4	*1. Become familiar with the other Mathematical Practices and begin to think about how to incorporate the practices into*	Select a module from Reasoning & Explaining, Modeling & Using Tools, or Seeing Structure & Generalizing. http://www.mathedleadership.org/ccss/itp/button.html	1. Are there any aspects of your own thinking and/or practice that your work today has caused you to consider or reconsider? Explain. 2. Are there any aspects of your students' mathematical learning that your work today has caused you to consider or reconsider? Explain. 3. Go through the each module resources and videos.

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	classroom instruction. 2. *Write a lesson that incorporates a selected mathematical practice.*		4. Select one module and write a summary of it. Describe how you would use the mathematical practice in your classroom. 5. Write a lesson incorporating the practices from the module. 3. Share the lesson with the other participants. Discuss ways to enhance the lesson.
Week 4	*Learning Community*	Facilitated Discussion of Week Four Readings & Webinars	***Weekly written response due by PLC*** **Lesson Plan Due by 5/17/13**
Unit 5	*1. Learn about the resources available on the OPI MCCS website.* 2. *Explore the MCCS Wiki and determine useful resources for implementing the Standards for Mathematical Practices.*	Navigate the OPI MCCS website webinar Mathematical Practices Highlights (16:45-25:48) Watch all-some repetative http://connect.opi.mt.gov/p7qyutkcv9w/?launcher=false&fcsContent=true&pbMode=normal Watch Mathematics Focus and Coherence: Critical Areas and Progressions Highlights (34 minutes) at http://opi.mt.gov/Curriculum/MontCAS/update_listings/Webinars/2012-06-07_115612.html **Reading:** Select a website from http://montanacommoncorestandards.wikispaces.com/Mathematics+Resources-Materials to explore and use as a resource for implementing the Standards for Mathematical Practices.	1. Write a plan to implement Standards for Mathematical Practice for the beginning of school. 2. Select two resources you will use and describe how you will use them to deepen your understanding of the Standards for Mathematical Practices. 3. Pose one think about as you continue to learn about and implement the Standards for Mathematical Practices.
Week 5	*Learning Community*	Facilitated Discussion of Week Two Readings & Webinars	***Weekly written response due by PLC*** **Action Plan due by 5/24/13**